

Chapter 7

Aviation Weapon Systems

Section I

Introduction

7-1. Standards, strategies, and requirements

a. This chapter provides weapons standards, training strategies and resource requirements for units equipped with the AH-64A/D, OH-58D, AH-1, UH-60, CH-47 and UH-1. The training programs provided have been designed for each airframe/weapon system and Training Readiness Condition (TRCs A and C). Each program contains a standard and strategy, which outlines the training sequence that includes, suggested frequencies of TADSS utilization, dry fire, and live fire exercises.

b. The objective and intent is to integrate with and brace the Combined Arms Training Strategy (CATS) while assisting unit and field commanders in achieving Department of the Army standards by TRC. The standards and strategies are also designed to ensure acceptable levels of weapon systems proficiency throughout applicable Army Aviation units.

c. The training programs in this chapter are intended to support the Army's training goals of having a combat ready force prepared to deploy on short notice, mobilize as necessary, and to fight and win. FM 1-140, Helicopter Gunnery, contains the requirements for attaining and sustaining gunnery proficiency and qualification with each weapon system on the applicable airframe. TC 1-200, Aircrew Training Program is the commander's guide to individual and crew training. It is a primary training document for Aviation Commanders and links individual and crews to unit collective tasks. The commander will also use FMs 25-100, Training the Force and 25-101, Battle Focused Training to link individuals, crews, and units into the collective training program.

7-2. Training Aids, Devices, Simulators and Simulation (TADSS)

a. General. Aviation relies on simulators and other training devices to train and sustain individual and crew tasks. Actual equipment and training ammunition is used to assess combat readiness at the individual and crew level. The training strategy combines training ammunition (Gunnery Tables) with TADSS to provide the comprehensive helicopter gunnery training program.

b. Objective. Simulators and procedural trainers provide switchology and procedural steps for weapon systems employment and helps in sustaining basic gunnery skills. Used within their limitations, flight/weapon simulators can be used for assessment purposes.

c. The following is a list of TADSS that support the training strategies:

(1) AH-64A Combat Mission Simulator (CMS).

(a) The AH-64 CMS provides a training capability for flight and weapons delivery, normal and emergency procedures and sensor system operating tasks required in the operational design of the AH-64 helicopter. The device consists of two crew stations mounted on separate motion platforms. An instructor station is available in either crew station.

(b) The pilot and copilot/gunner have the capability to train individually or as a crew performing an integrated combat mission using all weapon systems. The AH-64 CMS will support weapon system training for all weapons on the AH-64A.

(2) AH-64D Longbow Crew Trainer (LCT). The LCT is configured for the AH-64D airframe and weapon systems and provides a similar training capability to that of the CMS.

(3) AH-64 Cockpit, Weapons and Emergency Procedures Trainer (CWEPT). The CWEPT provides training for AH-64 pilots and copilot/gunners. The device is a non-motion based procedural trainer used for training individuals in cockpit, weapon systems, and emergency condition switchology and procedural step training. The CWEPT is used to train individuals who are undergoing AH-64 transition qualification. The Apache Crew Trainer (ACT) is an upgraded version of the CWEPT. It is a non-motion procedural trainer with improvement to the visual database, flight modeling, weapons systems and targeting. The CWEPT and ACT are used only at Fort Rucker during initial airframe qualification.

(4) Target Acquisition Designation System (TADS) Selected Task Trainer (TSTT). The TSTT is a non-motion based procedural trainer (front crew station) that provides selected switchology and procedural task training to a copilot/gunner (CPG) in weapon systems employment in the AH-64A.

(5) OH-58D Cockpit Procedures Trainer (CPT). The CPT is used to train individual aviators undergoing initial airframe qualification (system is available only at Fort Rucker). The device is a non-motion based procedural trainer used for training in the use of the Kiowa Warrior mission equipment package and in aircraft start-up and shutdown procedures. It provides limited training in weapons engagement procedures.

(6) OH-58D Crew Station Mission Equipment Trainer (CSMET). The CSMET is a low fidelity, non-motion based procedural trainer. It utilizes touch screen technology to support refresher and limited sustainment training for individuals and crews in operation and employment of the Kiowa Warrior mission equipment package. The device provides a capability for training in weapon systems engagement procedures.

(7) AH-1F Flight Weapons Simulator (FWS). The FWS provides training capability for flight and weapons delivery, normal and emergency procedures and operational tasks required in the aircraft. The device consists of two crew stations mounted on separate motion platforms. An instructor station is available in either crew station.

(8) UH-60 Synthetic Flight Training Simulator. Once software/hardware upgrades have been applied, the SFTS will be able to provide the flight dynamics associated with the Air Volcano mine dispensing training to the pilot/copilot crewmembers.

(9) Aerial Weapons Scoring System (AWSS). The AWSS is an integrated system of computer-controlled sensors used to score live-fire helicopter gunnery exercises. This objective scoring system allows the commander to validate training standards, ensure training effectiveness, and help substantiate training ammunition requirement levels. The system uses acoustical sensors to score 2.75" rocket/rocket sub-munition impact locations and a Doppler radar system to score cannon and machine-gun fire. A Laser Aim Scoring System (LASS) is a sub-system of the AWSS and is used to detect, identify, track and "score" laser energy of the selected target designator when used in conjunction with the Hellfire training missile (HTM). The AWSS was not designed to be used with service munitions.

(10) MILES/AGES. The MILES/AGES is a force-on-force training device that allows simulated air-to-ground and air-to-air engagements from actual aircraft. It uses eye-safe lasers and computers to assess proficiency during force-on-force training exercises. MILES provides immediate casualty assessment. MILES simulates actual aircraft systems. MILES allows units to conduct operations as they would in combat and provides an objective after-action review capability.

(11) Hellfire Dummy Missile. The Hellfire Dummy Missile assists individual and crew sustainment flight and gunnery training by providing a realistic means to practice flight operations with the aircraft at combat weights. It also provides ground armament crews with hands on arming/rearming (and downloading as applicable) with a full size and weight missile.

(12) Hellfire Training Missile (HTM). The HTM allows crews to train Hellfire engagement procedures without the expenditure of a live missile. It provides the individual/crew with symbology to search, acquire and simulate missile firing modes and techniques. The HTM provides the flight crew most of the pertinent tactical missile functions as an actual missile.

(13) Captive Flight Trainer (CFT). The CFT allows flight crews to practice air-to-air Stinger missile engagement by providing all pre-launch indications of an actual missile. The CFT is a live missile without the launch motor, flight motor and warhead. By using actual missile components, the system gives realistic cockpit indications (aural and visual) of seeker head spin up/cool down, acquisition and tracking reticles and missile lock on target.

(14) Field Handling Trainer (FHT). The FHT replicates the weight and physical appearance of a Stinger missile. The FHT allows an aircrew to experience flight conditions similar to those encountered while flying with actual air-to-air Stinger missiles. It also allows armament personnel to practice loading and downloading procedures. The FHT does not provide any electronic or cockpit displays.

(15) Remotely Piloted Vehicle Target System (RPVTS) . The RPVTS consists of two 1/5 scale propeller driven target aircraft configured to resemble the MI-24 Hind-D helicopter (an auto-gyro model) and the SU-25 Frogfoot. These can be equipped with an IR source for Stinger missile live-fire engagements. When available, these targets are government owned and contractor operated. If Stinger missiles are to be available for live-fire training, units should request target support through their MACOM.

Section II

Training Programs

7-3. Development

- a. Training programs have been developed for each TRC level and are indexed for cross-reference at 7-9. The standard is stated at the beginning of each program and is accompanied by a training strategy (Tables) that identifies training events and ammunition requirements. Individual training requirements are given first, followed by crew, team/platoon and company/troop as applicable. Proficiency is achieved through the use of simulation devices, dry-fire and live-fire exercises.
- b. To achieve crew level qualification as required by the STRAC standard and FM 1-140, the crew qualification table (Table VIII - or validation of Table VII) must be live fired and objectively scored. The AWSS will be requested through the unit's MACOM and will be used to score crew training (VII) and qualification (VIII) tables. If the AWSS is not available to the firing unit, an alternative scoring system or methodology must be used to evaluate gunnery standards. The battalion/squadron commander, and/or the S3, and the Master Gunner will determine (or develop) and utilize an alternative method of scoring. Crews firing will be briefed on the scoring methodology and will be held to that standard.
- c. The training programs were developed on the assumption that training events will be evenly spaced throughout the training year. Resource availability (e.g., ammunition and/or ranges) may allow a commander more live fire opportunities, but at a reduced density or of shorter duration.

7-4. Purpose and objectives of the training programs

Training programs provide a methodology to attain and sustain weapon system(s) proficiency throughout the training year. The programs, if completed to standard, will provide that all individuals, crews, sections/platoons, and companies/troops in a battalion/squadron are adequately trained and able to maintain weapon systems proficiency.

7-5. Programs for the AH-64A/D

- a. TRC A

(1) Standard.

(a) Eighty-five percent of the assigned aircrews at company/troop must be crew qualified (Table VIII) within the 12 month training year.

(b) Eighty-five percent of the assigned aircrews at company/troop must complete advanced table gunnery (Table X or XII) within the 12 month training year.

(2) Training Strategy. The individual, crew, and collective training strategy are given in Table 7-1.

b. TRC C.

(1) Standard. Eighty-five percent of the assigned aircrews at company/troop must be crew qualified (Table VIII) within the designated training period as prescribed by applicable regulations and/or directives by the NGB or USARC.

(2) Training Strategy. The individual and crew training strategy are given in Table 7-2.

7-6. Programs for the OH-58D

a. TRC A

(1) Standard.

(a) Eighty-five percent of the assigned aircrews at company/troop must be crew qualified (Table VIII) within the 12 month training year.

(b) Eighty-five percent of the assigned aircrews at company/troop must complete advanced table gunnery (Table X or XII) within the 12 month training year.

(2) Training Strategy. The individual, crew, and collective training strategy are given in Table 7-3.

b. TRC C

(1) Standard. Eighty-five percent of the assigned aircrews at company/troop must be crew qualified (Table VIII) within the designated training period as prescribed by applicable regulations and/or directives by the NGB or USARC.

(2) Training Strategy. The individual and crew training strategy are given in Table 7-4.

7-7. Programs for door gunnery (UH-60, CH-47, UH-1)

a. TRC A.

(1) Standard. Eighty-five percent of the assigned M60D/M240D doorgunners must have completed qualification IAW FM 1-140 within the 12 month training year. And, it is recommended that units conduct advanced table gunnery based on mission training requirements, resource availability (e.g., suitable range) and unit METL.

(2) Training Strategy. The individual, crew, and platoon training strategy are given in Table 7-5.

b. TRC C.

(1) Standard. Eighty-five percent of the assigned M60D/M240D doorgunners must have completed qualification IAW FM 1-140 within the designated training period as prescribed by applicable regulations and/or directives by the NGB or USARC.

(2) Training Strategy. The individual and crew training strategy are given in Table 7-5.

7-8. Programs for the Air Volcano (UH-60)

a. TRC A

(1) Standard. Eighty-five percent of designated Pilot In Command (PC) personnel who are Air Volcano system qualified must have completed Gate 3 training requirements within the 12 month training year.

(2) Training Strategy. The training strategy is given in Table 7-6.

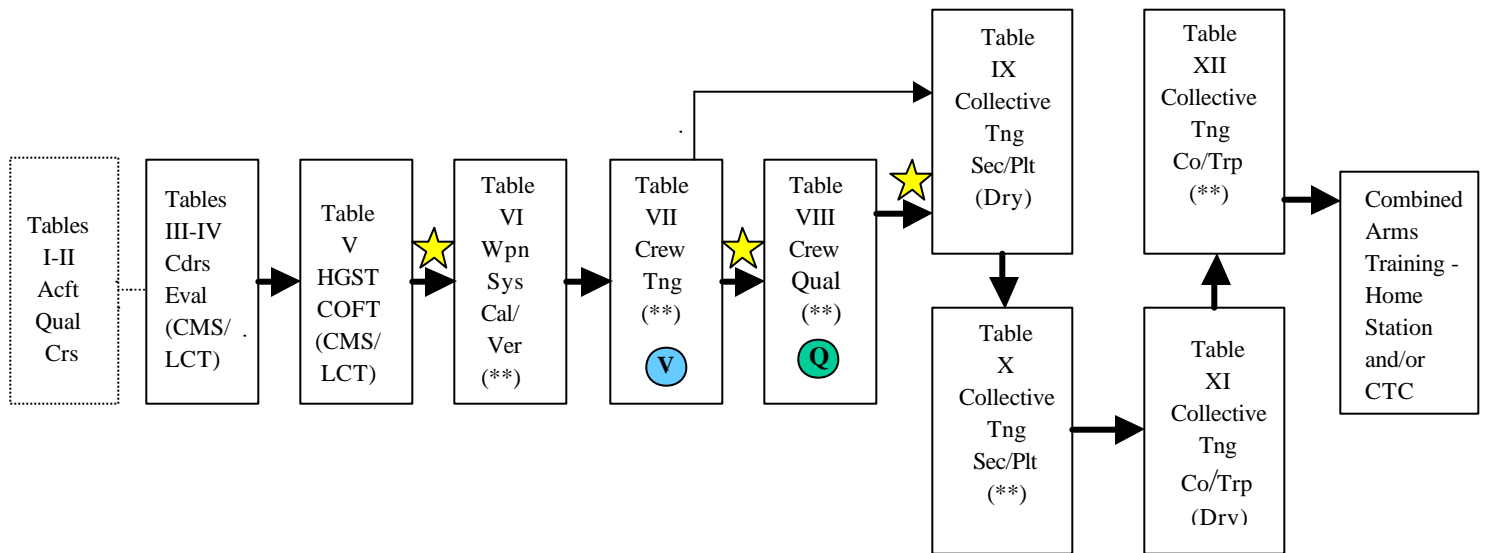
b. TRC C

(1) Standard. Eighty-five percent of designated Pilot In Command (PC) personnel who are Air Volcano system qualified must have completed Gate 3 training requirements with the designated training period as prescribed by applicable regulations and/or directives by the NGB or USARC.

(2) Training Strategy. The training strategy is given in Table 7-6.

7-9. Aviation Weapons Platform Training Index

<u>Weapon(s) Platform</u>	<u>Paragraph</u>	<u>Table</u>
AH-64A/D	7-5	7-1 & 7-2
OH-58D	7-6	7-3 & 7-4
UH-60, CH-47, UH-1 (Door Gunnery)	7-7	7-5

Figure 7-1, STRAC XXI, Training Program for AH-64A/D Units, TRC A & C

★ Gate -continue or retrain (para 1-3, FM 1-140)

Ⓥ Validation of Table VIII (para 2-9, FM 1-140)

Ⓚ Crew Qualification (para 1-3, FM 1-140)

(**) Live-Fire

Note: TRC C Units Not Resourced for Collective (Advanced Table) Gunnery

Table 7-1, AH-64A/D Units, TRC A
Annual Training Strategy for applicable Cav Sqdn or Atk Bn

DODIC				HA13	HA17	PD68	B118	L602	L367
EVENT	TABLE	FREQ	METHOD - TNG LEVEL	2.75" M274	2.75" M267	HELL- FIRE	30mm M788	HOFF- MAN	AT- WESS
Cdr's Eval	III	1	CMS/LCT - Indiv						
Cdr's Eval	IV	1	CMS/LCT - Indiv						
TSTT	N/A	4	Indiv						
CMS/LCT	N/A	4	Indiv						
HGST / G-COFT / Crew Integration	V	1	FM 1-140 & CMS/LCT/Acft Indiv - Crew						
Wpn Systems Cal-Ver	VI	1	Live-System Armt Off/Crew	12			150		
Crew Tng	VII D	1	Live - Crew	16	4	1 ³	100	10	
Crew Tng	VII N	1	Live - Crew	16	4	1 ³	100	10	
Crew Qual	VIII D	1	Live - Crew	16	4	1 ³	100	10	
Crew Qual	VIII N	1	Live - Crew	16	4	1 ³	100	10	
Adv Table	IX (D/N)	1	Dry - Tm/Plt						
Adv Table ^{1,2}	X (D/N)	1	Live - Tm/Plt	8		1 ³	180	10	
Adv Table	XI (D/N)	1	Dry - Co/Trp						
Adv Table ^{1,2}	XII (D/N)	1	Live - Co/Trp	8	6	1 ³	150	15	
FTX	N/A	2	Live - Bn/Sqdn						10 ⁴
Totals By Airframe									
x 16 Airframes				92/ 1472	22/ 352		880/ 14080	65/ 1040	20/ 320
x 18 Airframes				92/ 1656	22/ 396		880/ 15840	65/ 1170	20/ 360
x 24 Airframes				92/ 2208	22/ 528		880/ 21120	65/ 1560	20/ 480

Notes:

1. One engagement will be conducted under MOPP-4 conditions IAW ATM standards.
2. Unit Commander, S3, and/or Master Gunner will determine ammunition distribution for advanced table events based on unit training requirements and METL.
3. Hellfire missiles are not STRAC resourced. But when available, stockpile reliability, surveillance/stock rotation/shelf life missiles will be used.

4. ATWESS are used in support of MILES/AGES training.

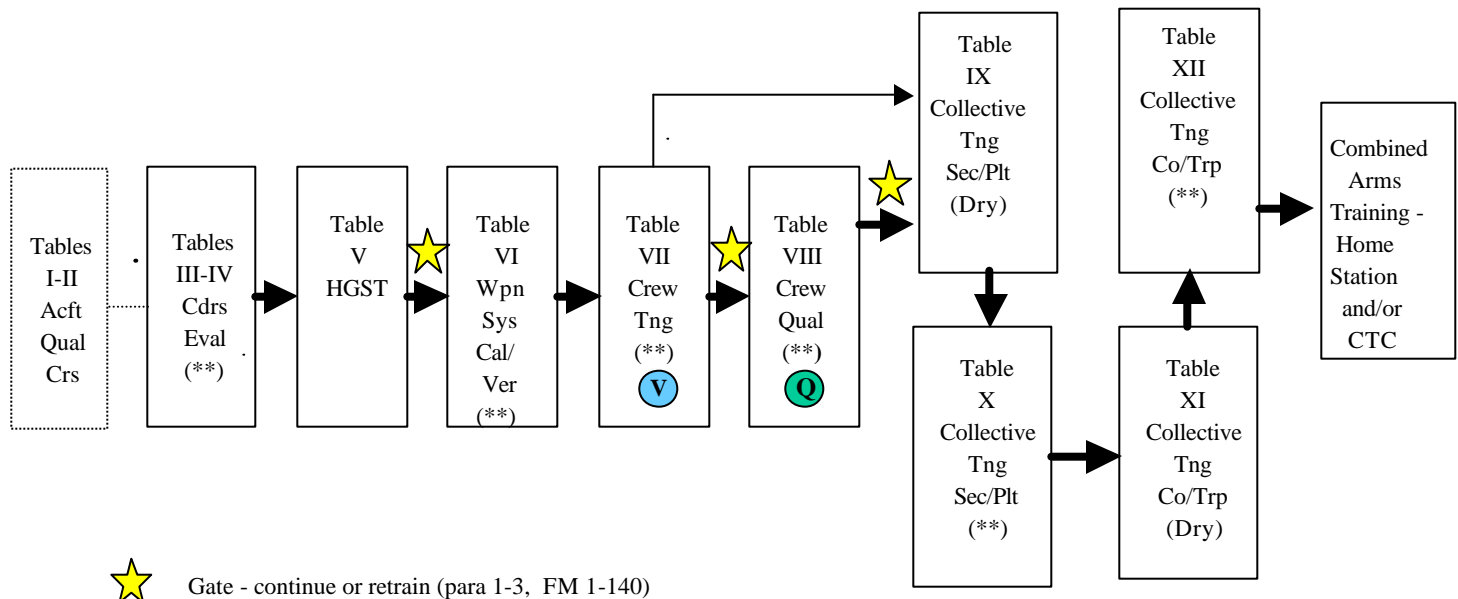
Table 7-2, AH-64A/D Units, TRC C
Annual Training Strategy for applicable Cav Sqdn or Atk Bn

DODIC				HA13	HA17	PD68	B118	L602	L367
EVENT	TABLE	FREQ	METHOD - TNG LEVEL	2.75" M274	2.75" M267	HELL- FIRE	30mm M788	HOFF- MAN	AT- WESS
Cdr's Eval	III	1	CMS/LCT - Indiv					5	
Cdr's Eval	IV	1	CMS/LCT - Indiv					5	
TSTT	N/A	2	Indiv						
CMS/LCT	N/A	2	Indiv						
HGST / G-COFT / Crew Integration	V	1	FM 1-140 & CMS/LCT/Acft - Indiv -Crew						
Wpn Systems Cal-Ver	VI	1	Live-System Armt Off/Crew	12			150		
Crew Tng	VII D	1	Live - Crew	16	4	1 ¹	100	10	
Crew Tng	VII N	1	Live - Crew	16	4	1 ¹	100	10	
Crew Qual	VIII D	1	Live - Crew	16	4	1 ¹	100	10	
Crew Qual	VIII N	1	Live - Crew	16	4	1 ¹	100	10	
FTX	N/A	1							10 ²
Totals By Airframe									
x 16 Airframes				76/ 1216	16/ 256		550/ 8800	40/ 640	10/ 160
x 18 Airframes				76/ 1368	16/ 288		550/ 9900	40/ 720	10/ 180
x 24 Airframes				76/ 1824	16/ 384		550/ 13200	40/ 960	10/ 240

Notes:

1. Hellfire missiles are not STRAC resourced. But when available, stockpile reliability, surveillance/stock rotation/shelf life missile will be used.
2. ATWESS are used in support of MILES/AGES training.

Figure 7-2, STRAC XXI, Training Program for OH-58D Units, TRC A & C



★ Gate - continue or retrain (para 1-3, FM 1-140)

Ⓥ Validation of Table VIII (para 2-9, FM 1-140)

Ⓚ Crew Qualification (para 1-3, FM 1-140)

(**) Live-Fire

Note: TRC C Units Not Resourced for Collective (Advanced Table) Gunnery

Table 7-3, OH-58D Units, TRC A
Annual Training Strategy for applicable Cav Sqdn or Atk Bn

DODIC				HA13	HA17	PD68	A557	L602	L367
EVENT	TABLE	FREQ	METHOD - TNG LEVEL	2.75" M274	2.75" M267	HELL- FIRE/ STING -ER	.50 CAL	HOFF -MAN	AT- WESS
Cdr's Eval	III	1	Live - Indiv	10	4		200	5	
Cdr's Eval	IV	1	Live - Indiv	10	4		200	5	
CSMET	N/A	4 ¹	Indiv						
HGST & Crew Integration	V	1	FM 1-140 & CSMET/Acft Indiv - Crew						
Wpn Systems Cal-Ver	VI	1	Live-System Armt Off/Crew	7			200		
Crew Tng	VII D	1	Live - Crew	10	4	1/1 ²	300	10	
Crew Tng	VII N	1	Live - Crew	9	3	1/1 ²	300	10	
Crew Qual	VIII D	1	Live - Crew	10	4	1/1 ²	300	10	
Crew Qual	VIII N	1	Live - Crew	9	3	1/1 ²	300	10	
Adv Table	IX (D/N)	1	Dry - Tm/Plt						
Adv Table ^{3,4}	X (D/N)	1	Live - Tm/Plt	14		1/1 ²	300	10	
Adv Table	XI (D/N)	1	Dry - Trp						
Adv Table ^{3,4}	XII (D/N)	1	Live - Trp	14		1/1 ²	300	15	
FTX	N/A	2	Live - Sqdn						10 ⁵
Totals By Airframe									
x 16 Airframes				93/ 1488	22/ 352		2400/ 38400	75/ 1200	20/ 320
x 24 Airframes				93/ 2232	22/ 528		2400/ 57600	75/ 1350	20/ 480
X 32 Airframes				93/ 2976	22/ 704		2400/ 76800	75/ 2400	20/ 640

Notes:

1. Based on availability of CSMET.
2. Hellfire and/or Stinger missiles are not STRAC resourced. But when available, stockpile reliability, surveillance/stock rotation/shelf life missile will be used.
3. Commander and/or Master Gunner will determine ammunition distribution for advanced table events based on unit training needs and METL.

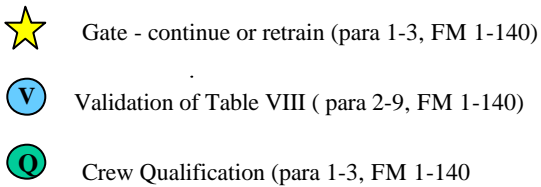
4. One engagement will be conducted under MOPP-4 conditions IAW ATM standards.
5. ATWESS are used in support of MILES/AGES training.

Table 7-4, OH-58D Units, TRC C
Annual Training Strategy for applicable Cav Sqdn or Atk Bn

DODIC				HA13	HA17	PD68	A557	L602	L367
EVENT	TABLE	FREQ	METHOD - TNG LEVEL	2.75" M274	2.75" M267	HELL- FIRE/ - STING -ER	.50 CAL	HOFF -MAN	AT- WESS
Cdr's Eval	III	1	Live - Indiv	10	4		200	5	
Cdr's Eval	IV	1	Live - Indiv	10	4		200	5	
CSMET	N/A	2 ¹	Indiv						
HGST & Crew Integration	V	1	FM 1-140 & CSMET/Acft - Crew						
Wpn Systems Cal-Ver	VI	1	Live-System Armt Off/Crew	7			200		
Crew Tng	VII D	1	Live - Crew	10	4	1/1 ²	300	10	
Crew Tng	VII N	1	Live - Crew	9	3	1/1 ²	300	10	
Crew Qual	VIII D	1	Live - Crew	10	4	1/1 ²	300	10	
Crew Qual	VIII N	1	Live - Crew	9	3	1/1 ²	300	10	
FTX	N/A	1							10 ³
Totals By Airframe									
x 16 Airframes				65/ 1040	22/ 352		1800/ 28800	50/ 800	160
x 24 Airframes				65/ 1560	22/ 528		1800/ 43200	50/ 1200	240
x 32 Airframes				65/ 2080	22/ 704		1800/ 57600	50/ 1600	320

Notes:

1. Based on availability of CSMET.
2. Hellfire and/or Stinger missiles are not STRAC resourced. But when available, stockpile reliability, surveillance/stock rotation/shelf life missile will be used.
3. ATWESS are used in support of MILES/AGES training.



Note: TRC C Units Not Resourced for Collective (Advanced Table) Gunnery

Table 7-4, AH-1F Units, TRC C
Annual Training Strategy for applicable Cav Sqdn or Atk Bn

DODIC				HA13	HA17	PV04	A896	L602	L367
				2.75" M274	2.75" M267	TOW	20mm	HOFF -MAN	AT- WESS
EVENT	TABLE	FREQ	METHOD - TNG LEVEL						
Cdr's Eval	III	1	FWS - Indiv						
Cdr's Eval	IV	1	FWS - Indiv						
FWS	N/A	2	Indiv						
HGST / C-COFT / Crew Integration	V	1	FM 1-140 & FWS / Acft – Indiv - Crew						
Wpn Systems Cal-Ver	VI	1	Live-System Armt Off/Crew	6			100		
Crew Tng	VII	1	Live - Crew	34	8		500	20	
Crew Qual	VIII	1	Live - Crew	34	8	1	500	20	
FTX	N/A	1							10 ¹
Totals By Airframe									
x 16 Airframes				74/ 1184	16/ 256	16	1100/ 17600	40/ 640	160
x 24 Airframes				74/ 1776	16/ 384	24	1100/ 26400	40/ 960	240

Note:

1. ATWESS are used in support of MILES/AGES training.

Table 7-5, Door Gunnery, TRC A & C
Annual Training Strategy for applicable UH-60, CH-47, and UH-1 Units

DODIC					A143 ¹ BALL	A131 ¹ MIX	A111 ¹ BLANK
EVENT	TABLE	FREQUENCY		METHOD - TNG LEVEL			
		TRC A	TRC C				
10m Practice	I ²	1	1	Live - Indiv	117		
Record	II	1	1	Live - Indiv	119		
Transition Practice	III	1	1	Live - Indiv		182	
Transition Record	IV	1	1	Live - Indiv		154	
Door Gunner Skills Test	V ³	1	1	FM 1-140 - Indiv			
Aircraft Transition	VI D ⁴	1	1	Live - Indiv		100	
Aircraft Transition	VI N	1	1	Live - Indiv		100	
Training Table	VII D	1	1	Live - Crew		150	
Training Table	VII N ⁵	1	1	Live - Crew		150	
Qualification Table	VIII D	1	1	Live - Crew		150	
Qualification Table	VIII N ⁵	1	1	Live - Crew		150	
Advanced Table	IX ⁶	1	0	Live - Sec/Plt			100
Advanced Table	X ⁶	1	0	Live - Sec/Plt		150	
FTX		2	1				200
Totals By TRC							
TRC A					236	1286	500
TRC C					236	1136	200

Notes:

1. Tables reflect requirements for one door gunner position per airframe. Total rounds per airframe double for second door gunner position filled per MTO&E.
2. Tables I through IV found in FM 23-67.
3. Events/Tables V through X found within FM 1-140,

4. NBC requirements, based on unit METL & SOP, can be integrated into transition table.
5. Night training/qualification requirements based on unit METL and SOP.
6. FM 1-140 provides suggested training for advanced table gunnery.

Table 7-6, M139 Air Volcano, TRC A & C
Annual Training Strategy for applicable UH-60 Units

DODIC				K042
EVENT	EXERCISE	FREQUENCY TRC A - TRC C		METHOD - TNG LEVEL Canister, Mine M88
Gate 1 Proficiency	System Operation / Employment	4 2		UH-60 SFTS - Indiv
Gate 2 Proficiency	Mine Dispensing	2	1	Live - Acft/M139 w/M89 Tng Device - Crew
Gate 3 Proficiency	Mine Dispensing	2	1	Live - Acft/M139 w/M88 Mines - (4 corners) - Crew 4
Totals By TRC				
TRC A 4 Canisters x 3 Airframes		2		24
TRC C 4 Canisters x 3 Airframes		1		12

Note:

Until hardware/software upgrades to the SFTS have been applied, the simulator Instructor/Operator will be required to manually change profile conditions to replicate changes in the operational weight, associated performance parameters and CG shift as applicable.

